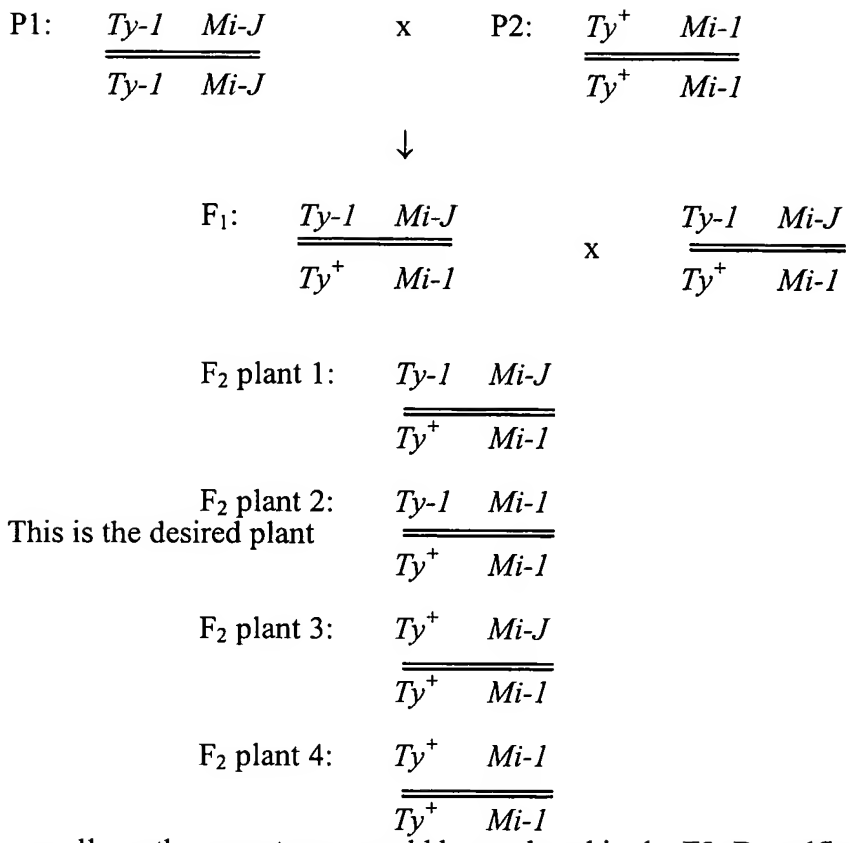
FIGURE 1



as well as other genotypes would be produced in the F2. By selfing plant number 2 completely homozygous plants for *Ty-1* and *Mi-1* can be identified.

FIGURE 2

Ty-1 assay
A = resistant allele, 303 & 95 bp
B = susceptible allele, 398 bp

FIGURE 3

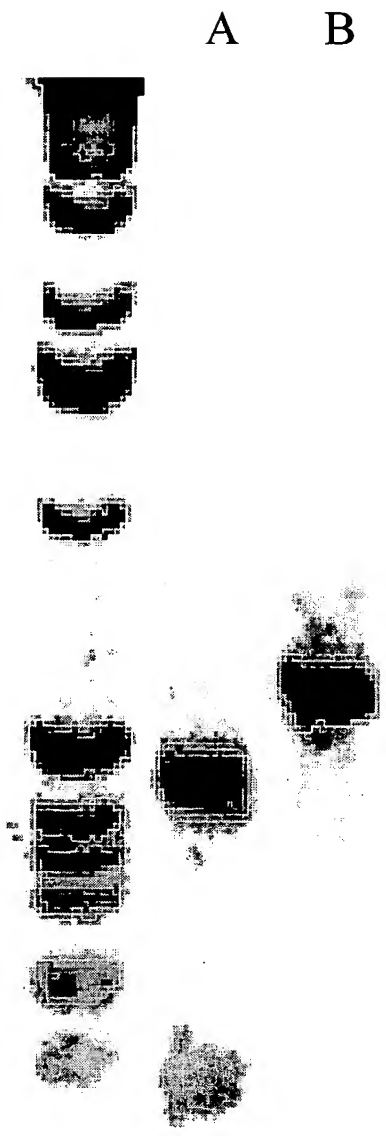


FIGURE 4

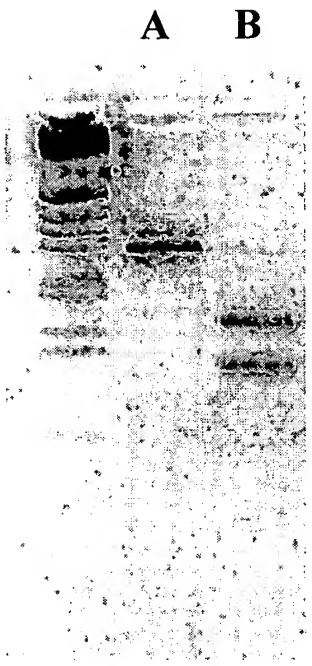


FIGURE 5

Ty-1 – SEQ ID NO.: 10
Ty+ - SEQ ID NO.: 11

SEQ ID NO:1
5' T A A T C C G T C G T T A C C T C T C C T T

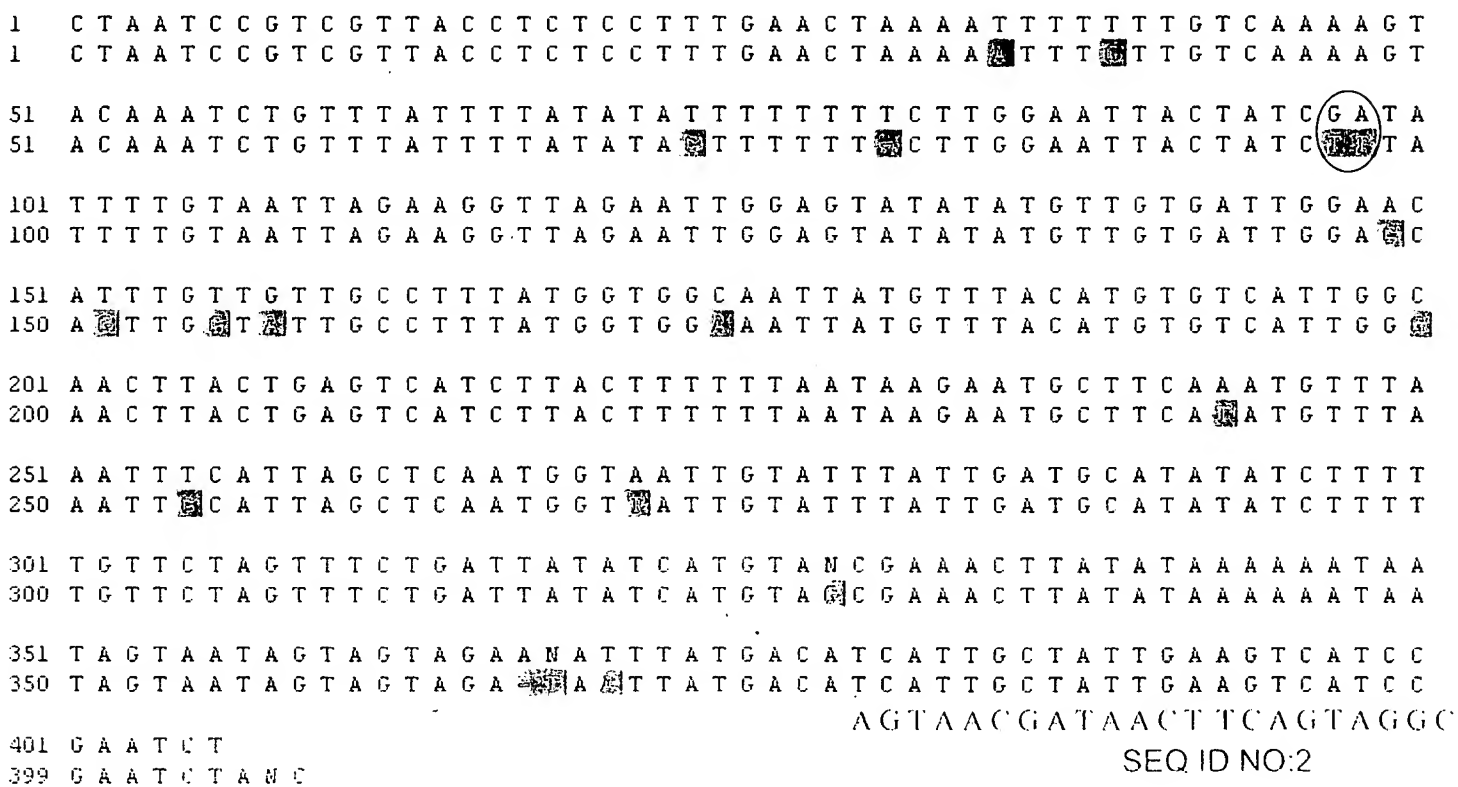


FIGURE 6

Mi+ - SEQ ID NO.: 7
Mi-1 - SEQ ID NO.: 8
Mi-J - SEQ ID NO.: 9

FIGURE 7

Mi+ (SEQ ID. NO. 7)

GACACGGACCCACTATTCTGAAACTGATGGTCATTCTTTCTCTCCTTATCGGAGCCTTGGTCTGAGTTTCCAGTCTTGCA
AGCAAAGTGACTAGCTTGACGTAAGGGATCTGCACTTACATCGGTATCCTGTTGAGTTGCATAACCAGAAACCATGGACT
TTGCTTTGACTTTTTTACCTGATTCACGATGAACATCTTTCTCCTCTAATTCAGCTTCAGATAATAGATCATAACTCTTG
CCATTGCAGGCATTATCCTTCTTAACCATACTGGATTTATTGGAGAACACATCATTTTCACCATCAGAAGACCTCTTGGG
ACTAGAAGTGGGTAAGGCTGAAGAGGGAGCAACAGAAGGTCGCGAATTGCATAGATCCTTTTGTGAAGAATCTGCAGCTT
TAACACTCAACAAAGATAGAGTACTATCCAGATCTTGCCCAGCCTGCTGTTCCTTTTTAACTTGACCTGTTCCAGCACTA
CCTTTGCTTGCACTAGTGTCCTTCCGGTCAGACAAGGAGACCCTTGCTACCTTTTCCTTCCTAGAGATGTCATCACATAT
TTTTTCCATAGAATCCTGGGGATTACATGTCAAGGAATCTCGCAGTTCTCTCCCTTTTCTCTTAATCGGAGAATCATTAT
TGTCACACTTCCCCTTATGCGTTGACACATCGGAAATATAAGCTTCTGGGTTCTTTGCTGAAACCAAGTCTTTCTTTGAA
TCATCCTCTGAGTCCCTGTTCTTACATTTGTCACGAATCATCTCTGGCATTTTACTGCTTGAACTCCATCTAGACTTTTC
AACAACAGGGCAAAAGGTCTGGTTCTCGTCATCGAGTGCATCATCTTGTATAATTTTTTTGGAAGATACATCTGATTCCA
CTTCACTTGTGTTCCTTCTATTTGCATCCTCCGTAG

Mi-1 (SEQ ID. NO. 8)

GACACGGACCCACTATTCTGAAACCGATGGTCATTCTTTCTCTCCTTATCGGAGCCTTGGTCTGAATTTCCCGTCTTGCA
AGCAAATTGACTAGCTTGACGTAAGGGATCTGCACTTGCATCGGTATCCTGTTGAGTTGCATAACCAGAAACCGTGGACT
TTGCTTTGACTTTTTTACCTGATTCACGATGGACATCTTTCTCCTCTAATTCAGCTTCAGATAATAGATCATAACTCTTG
CCATTGCAGGCATTATCCTTCTTAACCATACTGGATTTATTGGAGAACCCATCATTTTCACCATCAGAAGACCTCTTGGC
ACTAGAAGTGGGAAAGGCTGAAGAGGGAGCAACAGAAGGTCGCGAATTGCATAGATCCTTTTGTGAAGAATCTGCAGCTT
TAACACTCAACAAAGATAGAGTACTATCCAGATCTTGCCCAGCCTGCTGTTCCTTTTTAACTTGACCTGTTCCAGCACTA
CCTTTGCTTGCACTAGTGTCCTTCCGGTCAGACAAGGAGACCCTTGCTACCTTTTCCTTCCTGGAGATGTCATCACATAT
TTTTTCCATAGAATCTTGGGGATTACATGTCAAGGAATCTCGAAGTTCTCTCCCTTTTCTCTTAATCGGAGAATCATTAT
TGTCACACTTCCCCTTATGCGTTGACACATCGGAAATATAAGCTTCTGGGTTCTTTGCTGAAACCAAGTCTTTCTTTGAA
TCATCCTCTGAGTCCCTGTTCTTACATTTCTCACGAATCATCTCTGGCATTTTACTGCTTGAACTCCATCTAGACTTTTC
AACAACAGGGCAGAAGGTCTGGTTCTCGTCATCGAGTGCATCATCTCGTATAATTTTTTTGGAAGATACATCTGATTCCA
CCTCACTTGTGTTCCTTCTATTTGCATCCTCCGTAG

Mi-J (SEQ ID. NO. 9)

GACACGGACCCACTATTCTGAAACTGATGGTCATTCTTTCTCTCCTTATCGGAGCCTTGGTCTGACTTTCCAGTCTTGCA
AGCAAATTGACTAGCTTGACGTAAGGGATCTGCACTTACATCGGTATCCTGTTGAGTTGCATAACCAGAAACCGTGGACT
TTGCTTTGACTTTTTTACCTGATTCACGATGGACAACTTTCTCCTCTAATTCAGCTTCAGATAATAGATCATAACTCTTG
CCATTGCAGGCATTATCCTTCTTAACCATACTGGATTTATTGGAGAACCCATCATTTTCACCATCAGAAGACCTCTTGGG
ACTAGAAGTGGGTAAGGCTGAAGAGGGAGCAACAGAAGGTCGCGAATTGCATAGATCCTTTTGTGAAGAATCTGCAGCTT
TAACACTCAACAAAGATAGAGTACTATCCAGATCTTGCCCAGCCTGCTGTTCCTTTTTAACTTGACCTGTTCCAGCACTA
CCTTTGCTTGCACTAGTGTCCTTCCGGTCAGACAAGGAGACCCTTGCTACCTTTTCCTTCCTGGAGATGTCATCACATAT
TTTTTCCATAGAATCCTGGGGATTACATGTCAAGGAATCTCGAAGTTCTCTCCCTTTTCTCTTAATCGGAGAATCATTAT
TGTCACACTTCCCCTTATGCGTTGACACATCGGAAATATAAGCTTCTGGGTTCTTTGCTGAAACCAAGTCTTTCTTTGAA
TCATCCTCTGAGTCCCTGTTCTTACATTTGTCATGAATCATCTCTGGCATCTTACTGCTTGAACTCCATCTAGACTTTTC
AACAACAGGGCAGAAGGTCTGGTTCTCGTCATCGAGTGCATCATCTTGTATAATTTTTTTGGAAGATACATCTGATTCCA
CCTCACTTGTGTTCCTTCTATTTGCATCCTCCGTAG

Ty-1 (SEQ ID. NO. 10)

CTAATCCGTCGTTACCTCTCCTTTGAACTAAAATTTTTTTGTCAAAAGTTACAAATCTGTTTATTTTATATATTTTTTTT
CTTGGAATTACTATCGATATTTTTGTAATTAGAAGGTTAGAATTGGAGTATATATGTTGTGATTGGAACGATTTGTTGTT
GCCTTTATGGTGGCAATTATGTTTACATGTGTCATTGGCTAACTTACTGAGTCATCTTACTTTTTTAATAAGAATGCTTC
AAATGTTTATAATTTCATTAGCTCAATGGTAATTGTATTTATTGATGCATATATCTTTTTTGTTCTAGTTTCTGATTATA
TCATGTANCGAAACTTATATAAAAAATAATTAGTAATAGTAGTAGAANATTTATGACATCATTGCTATTGAAGTCATCCG
GAATCT

Ty + (SEQ ID. NO. 11)

CTAATCCGTCGTTACCTCTCCTTTGAACTAAAAATTTGTTGTCAAAAGTTACAAATCTGTTTATTTTATATACTTTTTTC
TTGGAATTACTATCTTTATTTTTGTAATTAGAAGGTTAGAATTGGAGTATATATGTTGTGATTGGACCGAGTTGCTATTG
CCTTTATGGTGGAAATTATGTTTACATGTGTCATTGGGTAACTTACTGAGTCATCTTACTTTTTTAATAAGAATGCTTCA
TATGTTTATAATTCCATTAGCTCAATGGTTATTGTATTTATTGATGCATATATCTTTTTTGTTCTAGTTTCTGATTATAT
CATGTAGCGAAACTTATATAAAAAATAAATAGTAATAGTAGTAGATAATTATGACATCATTGCTATTGAAGTCATCCGGA
ATCTANC

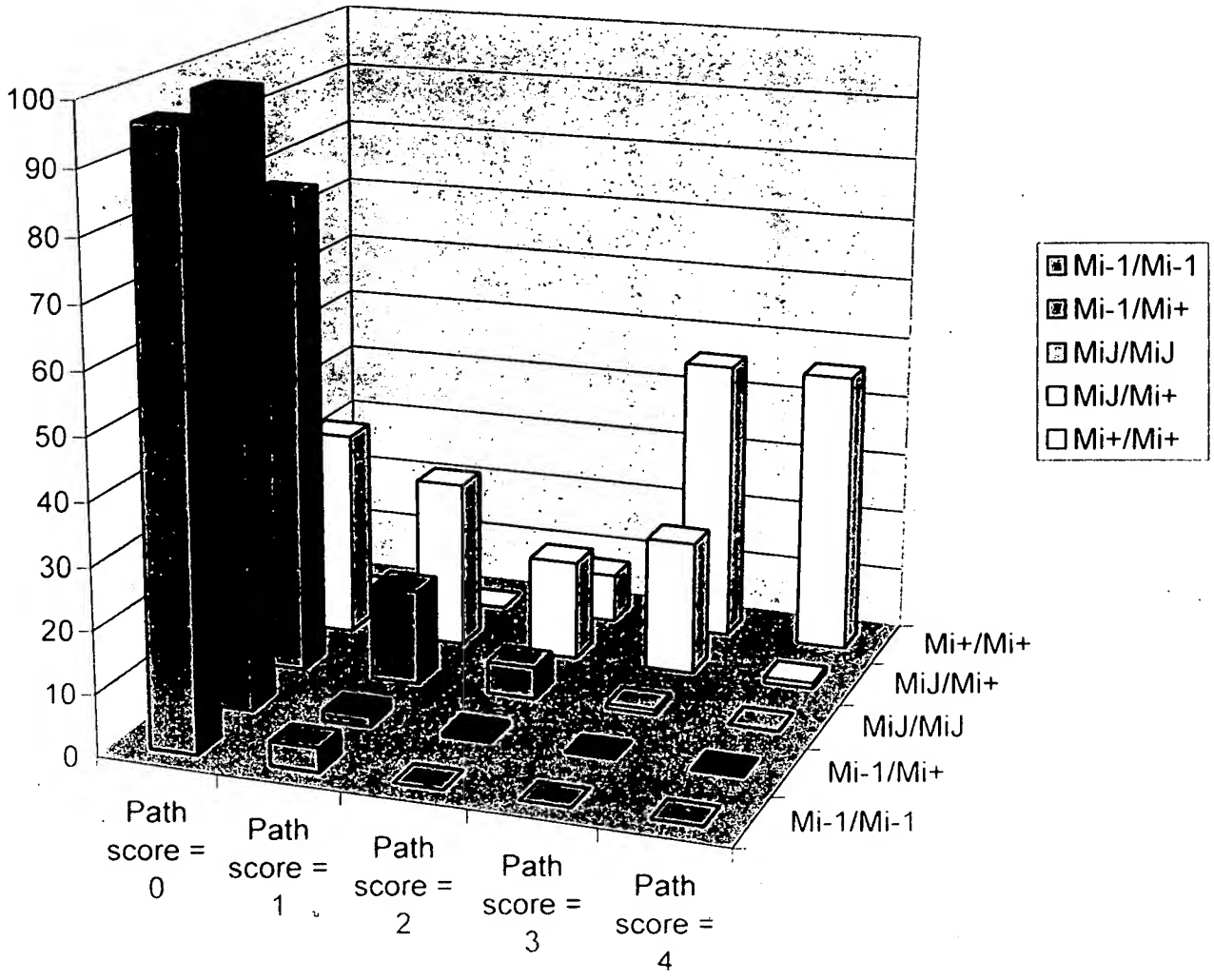



Figure 8 - Normalized Pathology Scoring